

AMENDMENTS TO THE CLAIMS

1. (Currently amended) A discrete paper feeder comprising:

a separation roller for separating a single sheet of paper from a plurality of paper sheets ~~that are loaded~~;

a transfer roller arranged so as to be downstream of said separation roller ~~provided in the a~~ direction of transfer of said sheet of paper ~~by said separation roller~~ and driven to rotate with a predetermined peripheral speed difference with respect to said separation roller;

a sun gear;

a ring-shaped geared section provided coaxially with said sun gear and having an internally-toothed gear on an inner periphery;

a planetary gear support section provided at an end portion of a rotation shaft of said separation roller;

a planetary gear supported on said planetary gear support section and engaging said sun gear and said internally-toothed gear;

a disc member having a first side secured to said ring-shaped geared section and a second side, opposite said first side, having a groove formed therein; ~~on the side opposite the side on which said geared section is secured;~~

a lever member provided on said second side ~~the side of said groove~~ of said disc member in a manner slidable in ~~the a~~ radial direction of said disc member; and

a slide pin ~~provided on projecting from~~ said lever member ~~in a manner projecting and~~ slidable along said grooves of said disc member ~~by the upon~~ rotation of said disc member.

2. (Currently amended) The discrete paper feeder of claim 1, further comprising a reader for reading ~~the~~ contents of said sheet of paper and provided between said separation roller and said transfer roller.

3. (Currently amended) The discrete paper feeder of claim 1, wherein said disc member includes an engagement section at an end of said groove to engage said slide pin.

4. (Currently amended) The discrete paper feeder of claim 1, further comprising a rotation stopping section for regulating rotation of said lever member in a predetermined direction.

5. (Currently amended) The discrete paper feeder of claim 4, further comprising:
a pressing member pressed to ~~the~~ a periphery of said disc member; and
a resilient member, ~~one end of which being~~ having a first end supported by said pressing member and ~~the other~~ a second end being supported by said rotation stopping section, for pressing said pressing member to ~~the~~ an outer edge of said disc member ~~thereby to~~ to thereby urge said lever member outwardly of said disc member.

6. (Currently amended) The discrete paper feeder of claim 1, wherein said disc member has, as said groove:

an engagement groove having an engagement section for engaging said slide pin;
a slide groove for peripheral speed difference disposed in series with said engagement groove ~~at the side of the periphery of said disc member along the~~ a periphery of said disc member; and
a slide groove for manuscript interval disposed in series with said slide groove for peripheral speed difference ~~to the side of said engagement groove~~ and disposed in a manner extending from said slide groove for peripheral speed difference to the periphery of said disc member.

7. (Currently amended) The discrete paper feeder of claim 6, wherein said disc member has a plurality of said engagement grooves, said slide grooves for peripheral speed difference, and said slide grooves for manuscript interval at even angular intervals about a ~~in a manner symmetric with respect to the~~ center of said disc member, and each of said slide grooves for manuscript interval is ~~extending~~ extends toward the periphery of said disc member and ~~connecting~~ connects to each of neighboring ones of said engagement grooves.

8. (Currently amended) The discrete paper feeder of claim 6, wherein a plurality of said engagement sections are disposed on said disc member in a manner symmetric with respect to ~~the~~ a center of rotation of said disc member.

9. (Currently amended) The discrete paper feeder of claim 1, further comprising a drive motor for rotating said sun gear.

10. (Currently amended) The discrete paper feeder of claim 1, further comprising a paper loading section for feeding said paper sheets to said separation roller.

11-13. (Canceled)

14. (Currently amended) A discrete paper feeder comprising:
a separation roller for separating a single sheet of paper from a plurality of paper sheets ~~that are loaded;~~

a transfer roller ~~provided~~ provided arranged so as to be downstream of said separation roller in ~~the~~ a direction of transfer of said sheet of paper ~~by said separation roller~~ and driven to rotate with a predetermined peripheral speed difference with respect to said separation roller;

a sun gear;

a ring-shaped geared section provided coaxially with said sun gear and having an internally-toothed gear on an inner periphery;

a planetary gear support section provided at an end portion of a rotation shaft of said separation roller;

a planetary gear supported on said planetary gear support section and engaging said sun gear and said internally-toothed gear;

a disc member having a first side secured to said ring-shaped geared section and a second side, opposite said first side, having a groove formed therein; ~~on the side opposite the side on which said geared section is secured;~~

a lever member provided on ~~said second side~~ the side of said ~~grooves~~ of said disc member in a manner slidable in ~~the~~ a radial direction of said disc member; and

a slide pin ~~provided on~~ projecting from said lever member ~~in a manner projecting and~~ slidable along said groove of said disc member ~~by the~~ upon rotation of said disc member; wherein,

when said sheet of paper is bitten by both said separation roller and said transfer roller, said disc member rotates by the peripheral speed difference between said separation roller and said transfer roller, and the peripheral speed difference between said separation roller and said transfer roller is absorbed by moving of said slide pin in said ~~grooves~~ groove, and,

when said sheet of paper leaves said separation roller, said disc member ~~makes~~ undergoes reverse rotation while said slide pin moves in ~~the~~ a reverse direction in said groove thus interrupting transmission of ~~the~~ driving force from said sun gear to said separation roller until said slide pin engages.

15. (Currently amended) The discrete paper feeder of claim 14, wherein said disc member includes an engagement section at an end of said groove to engage said slide pin.

16. The discrete paper feeder of claim 14, further comprising a rotation stopping section for regulating ~~the~~ rotation of said lever member in a predetermined direction; wherein, when said sheet of paper is bitten by said separation roller only, the driving force from said sun gear is transmitted to said separation roller via said planetary gear support section by stopping the rotation of said ring-shaped geared section with said rotation stopping section and said lever member having said slide pin.

17. (Currently amended) The discrete paper feeder of claim 16, further comprising:
a pressing member to be pressed to ~~the~~ a periphery of said disc member; and
a resilient member, ~~one end of which being~~ having a first end supported by said pressing member and ~~the other~~ a second end ~~being~~ supported by said rotation stopping section, for pressing

said pressing member to ~~the~~ an outer edge of said disc member ~~thereby to~~ to thereby urge said lever member outwardly of said disc member.

18. (New) A discrete paper feeder comprising
a separation roller for separating a single sheet of paper from a plurality of paper sheets,
a transfer roller arranged so as to be downstream of said separation roller in a direction of transfer of said sheet of paper and driven to rotate faster than said separation roller by a predetermined peripheral speed difference with respect to said separation roller, and
a driving force control section for transmitting driving force to said separation roller, wherein said driving force control section includes:
a sun gear;
a ring-shaped geared section provided coaxially with said sun gear and having an internally-toothed gear on an inner periphery;
a planetary gear support section provided at an end portion of a rotation shaft of said separation roller;
a planetary gear supported on said planetary gear support section and engaging said sun gear and said internally-toothed gear;
a disc member having a first side secured to said ring-shaped geared section and a second side, opposite said first side, having a groove formed therein;
a lever member provided on the second side of said disc member in a manner slidable in a radial direction of said disc member; and
a slide pin projecting from said lever member and slidable along said groove of said disc member upon rotation of said disc member;
wherein said driving force control section interrupts transmission of driving force to said separation roller for a predetermined period when said slide pin slides in said groove after said sheet of paper leaves said separation roller.

19. (New) The discrete paper feeder of claim 18, wherein said driving force control section further includes a rotation stopping section for regulating rotation of said lever member in a predetermined direction.